

in the leaves or fruit of his type specimen collected in southeastern Virginia, a region where *F. pennsylvanica* does not occur. Other specimens of *F. caroliniana* with pubescent leaflets and branchlets in the herbarium of the Arboretum were collected beyond the region inhabited by *F. pennsylvanica* and are referred to this variety

VIRGINIA. Isle of Wight County, banks of Blackwater River near Zuni, A. Rehder (type), August 19, 1905.

FLORIDA. Taylor County, swamp near the coast, T. G. Harbison, September 8, 1918.

LOUISIANA. Tangipahoa Parish; Ponchatoula, C. S. Sargent, March 29, 1917, near Hammond, C. S. Sargent, March 30, 1917.

NEW SPECIES, VARIETIES AND COMBINATIONS FROM THE HERBARIUM AND THE COLLECTIONS OF THE ARNOLD ARBORETUM¹

ALFRED REHDER

VITACEAE

Ampelopsis Michx.

Ampelopsis brevipedunculata Koehne, Deutsch. Dendr. 400 (1893),—*Cissus* (*Ampelopsis*) *brevipedunculata* Maximowicz in Mém. Acad. Sci. Div. Sav. St. Pétersbourg, ix. 68 (Prim. Fl. Amur.) (1859).—*Cissus humulifolia* β. *brevipedunculata* Regel in Mém. Acad. Sci. St. Pétersbourg, sér. 7, iv. No. 4, p. 35 (Tent. Fl. Ussur) (1861). — *Vitis heterophylla* α. *cordata* Regel in Gartenfl. xxii. 197 (1873), excl. planta americana. — *A. heterophylla* var. β. *amurensis* Planchon in De Candolle, Monog. Phan. v. 456 (1887). — Rehder in Bailey, Stand. Cycl. Hort. i. 278, fig. 191 (1914). — *A. heterophylla* var. γ. *Lavallei* Planchon, l. c. (1887). — *Vitis brevipedunculata* Dippel, Handb. Laubholzk. ii. 564, fig. 267 (1892). — *Vitis amurensis* hort. ex Dippel, l. c. (1892), pro synonym., non Rupr.

The plant originally described by Thunberg as *Vitis heterophylla* belongs to the genus *Ampelopsis* and is generally known as *A. heterophylla* Sieb. & Zucc., but unfortunately this name cannot be retained, on account of the older *A. heterophylla* Blume (Bijdr. 194 [1825]) which is under the genus *Ampelopsis* the valid name of the plant named by Planchon *Landukia Landuk* (*Cissus Landuk* Hassk., *Vitis Landuk* Miq.) and by Gagnepain *Parthenocissus Landuk*,² but for which the correct combination under

¹ Continued from p. 128.

² As Gagnepain has shown (in Bull. Soc. Hist. Nat. Autun, xxiv. 10 [1911]), the genus *Landukia* cannot be generically separated from *Parthenocissus* and he, therefore, unites the two genera choosing the name *Parthenocissus* for the group. Though *Landukia* has page priority over *Parthenocissus*, it should not be used as the name for the group, as the International Rules of Botanical Nomenclature do not recognize page priority, but rule, according to article 46, that an author who unites two or more genera of the same date may choose, and that his choice cannot be modified by subsequent authors. Moreover, *Parthenocissus* is a nomen conservandum and should be retained "en tous cas."

Parthenocissus is *P. heterophylla* (Bl.) Merrill. The next oldest name available to take the place of *A. heterophylla* Sieb. & Zucc. is apparently *Cissus brevipedunculata* Maxim. of 1859, which, though representing a different form, is undoubtedly conspecific with *Vitis heterophylla* of Thunberg. *Ampelopsis brevipedunculata* in its wider conception is a very variable species and the following varieties and forms may be distinguished. The type occurs in Manchuria, northern China and in Japan.

Ampelopsis brevipedunculata var. *Maximowiczii*, Rehder in Bailey, Gent. Herb. I. 36 (1920) — *Vitis heterophylla* Thunberg, Fl. Jap. 103 (1784.) — *A. heterophylla* Siebold & Zuccarini in Abh. Akad. Muench. iv. 197 (Fam. Nat. Fl. Jap. i. 89) (1846), pro parte, excl. var. α^1 , non Blume. — *A. humulifolia* Bge. β . *heterophylla* K. Koch, Hort. Dendr. 48 (1853). — *Cissus bryoniaefolia* Regel in Mém. Acad. Sci. St. Pétersbourg, sér. 7, iv. No. 4, p. 35, t. 3, fig. 3 (Tent. Fl. Ussur.) (1861), non Bunge. — *A. Regeliana* Carrière in Rev. Hort. 1866, 440. — *Vitis heterophylla* var. *humulifolia* Hooker in Bot. Mag. xciii. t. 5682 (1867), excl. synonym. Bungei. — *Vitis heterophylla* β . *Maximowiczii* Regel in Gartenfl. xxii. 197, t. 765, fig. 2 (1873). — *Vitis humulifolia* f. *glabra* O. Debeaux in Act. Linn. Soc. Bordeaux, xxxi. 132 (Fl. Tché-fou 37) (1876). — *A. heterophylla* var. *Bungei* subvar. α^{bis} *Sieboldii* Planchon in De Candolle Monog. Phan. v. 456 (1887).² — *A. heterophylla Maximowiczii* Schelle in Beissner, Schelle & Zabel, Handb. Laubholz-Ben. 333 (1903). — *A. heterophylla Regeliana* hort. apud Schelle, l. c. (1903). — *A. aconitifolia* Hort. ex Nicholson, Kew Handlist Arb. i. 77 (1894), pro synonym. — *A. heterophylla* var. *humulifolia* Merrill in Philipp. Jour. Sci. xi. Bot. 129 (1916), excl. synonym. Bungei et Planchonii.³

This is the *Vitis heterophylla* of Thunberg for which the oldest available varietal name seems to be *Vitis heterophylla* var. *Maximowiczii* Regel. The earlier *A. humulifolia* β . *heterophylla* K. Koch cannot be used, as it is not a valid name being formed against the rules of nomenclature by making the older *V. heterophylla* a variety of the later *A. humulifolia*. Also *Vitis heterophylla* var. *humulifolia* Hooker is not available, as this combination is based on *A. humulifolia* Bunge which is different from the plant described and figured by Hooker.

The variety differs from the type chiefly in the more deeply divided and more glabrous leaves and stems. It is common in Japan and Korea and probably extends into Manchuria and to eastern China and the Philippines.

¹ Var. α = *A. humulifolia* Bunge, which has often been confused with *Vitis heterophylla* Thunberg, is a very distinct species (see my note in Mitt. Deutsch. Dendr. Ges. xxi. 187 [1912]), apparently restricted to northern China. To this species probably belongs *Cissus Davidiana* Carrière in Rev. Hort. 1868, 29, fig. 2 (*Vitis Davidiana* Nicholson, Dict. Gard. iv. 187, fig. 203 [1889]), but not *Ampelopsis Davidiana* Mottet which is *Vitis Piasezkii* Maxim., nor *Spinovitis Davidii* Carrière which is *Vitis Davidii* Foëx (*V. armata* Diels & Gilg.).

² Var. α *Bungei* (excl. var. α^{bis} and α^{ter}) = *A. humulifolia* Bunge (see preceding footnote).

³ Lavallée, Arb. Segrez. 36 (1877) quotes *Cissus acutiloba*, *C. pinnata* and *C. major* Carr. as synonyms of *A. heterophylla* Sieb. & Zucc., but these names are apparently inaccurate citations of *Cissus Davidiana acutiloba*, *C. Davidiana pinnata* and *C. Davidiana major* Carrière in Rev. Hort. 1868, 39; they may belong, at least partly, to the true *A. humulifolia* Bunge.

Ampelopsis brevipedunculata var. **Maximowiczii** f. **citrulloides**, comb. nov. — *A. citrulloides* Lebas in Rev Hort. 1875, 179. — *Vitis citrulloides* hort. nonn. ex Dippel, Handb. Laubholzk. II. 565 (1892), pro synonym. *V. heterophyllae*. — *Vitis & Ampelopsis citrullifolia* hort. ex Dippel, l. c. (1892), pro synonym. — *A. heterophylla citrulloides* hort. apud Schelle in Beissner, Schelle & Zabel, Handb. Laubholz-Ben. 333 (1903). — Rehder in Bailey, Stand. Cycl. Hort. I. 278 (1914), pro var. — *Vitis heterophylla* var. *citrulloides* hort. ex Schneider, Handb. Laubholzk. II. 320 (1909), pro synonym.

This form differs chiefly in the more deeply 5-lobed leaves with the middle lobe and sometimes the lateral lobes sinuately lobed or toothed with large sinuses and much constricted near the base and middle. It is occasionally met with in cultivation. The only spontaneous specimen I have seen is Wilson's No. 7795 from Japan, collected on Shikoku, Tosa prov., Nishirokawa, up to 1000 m. alt., common, Nov. 20, 1914.

Ampelopsis brevipedunculata var. **Maximowiczii** f. **elegans**, comb. nov. — *Vitis elegans* K. Koch in Ind. Sem. Hort. Berol. 1855, app. 16. — Talou in Hort. Franç. 1866, 103, t. 4. — Witte, Flora, 293, t. 74 (1868). — *Cissus elegans* Hort. ex Jaeger, Ziergeh. 567 (1865), pro synonym. — *Vitis heterophylla* γ . *elegans* Regel in Gartenfl. XXII. 197 (1873). — *Cissus elegans* Carrière in Rev. Hort. 1876, 419. — *Vitis elegantissima* hort. ex Jaeger & Beissner, Ziergeh. ed. 2, 417 (1884), pro synonym. — *A. heterophylla* f. *elegans* Voss in Vilmorin Blumengaert. I. 183 (1894). — Rehder in Bailey, Cycl. Am. Hort. I. 59 (1900), pro var. — *Vitis Sieboldii* hort. nonn. ex Dippel, Handb. Laubholzk. II. 567 (1892), pro synonym. — *Vitis heterophylla* var. *variegata* Nicholson in Kew Hand-list Arb. I. 77 (1894). — *A. tricolor* hort. ex Rehder in Bailey, Cycl. Am. Hort. I. 59 1900, (pro synonym). — *Vitis heterophylla* var. *tricolor* (hort.) ex Nicholson in Kew Handlist Arb. ed. 2, 117 (1902), pro synonym. — *A. heterophylla tricolor* hort. apud Schelle in Beissner, Schelle & Zabel, Handb. Laubholzk. 333 (1903).

This form is nearest to *A. brevipedunculata citrulloides*, but the leaves are variegated with white and greenish white and more or less tinged pink while young.

Ampelopsis brevipedunculata var. **vestita**, comb. nov. — *A. heterophylla* var. *cinerea* Gagnepain in Sargent, Pl. Wilson, I. 101 (1911), tantum quoad no. 2720. — *A. heterophylla* var. *vestita* Rehder in Sargent, Pl. Wilson, I. 579 (1913).

Besides Wilson's 2720 which has the leaves densely soft-pubescent above and tomentose beneath, I refer to this variety the following specimens which are less pubescent, but have the upper surface more or less short-pubescent (glabrous in all other forms of *A. brevipedunculata*) and the lower surface pilose.

Hupeh: A. Henry (No. 7519), E. H. Wilson (Veitch Exped. No. 2703). Chekiang: Ningpo, 1908, D. Macgregor. Kwangtung: Lin Distr., October 2, 1918, C. O. Levine (No. 3188).

Ampelopsis brevipedunculata var. *kulingensis* Rehder in Bailey, *Gent. Herb.* i. 36 (1920).

CHINA. Kiangsi.

This variety resembles somewhat typical *A. brevipedunculata*, but is easily distinguished by its glabrousness and by the leaves being truncate or subcordate at the base, remotely and sinuately denticulate and 3-lobed near the apex with long-acuminate lobes.

Ampelopsis brevipedunculata var. *Hancei*, comb. nov. — *Vitis sinica* Miquel in *Jour. Bot. Néerl.* i. 125 (1861). — *A. heterophylla* var. δ . *Hancei* Planchon in De Candolle, *Monog. Phan.* v. 457 (1887). — *A. heterophylla* var. *sinica* Merrill in *Philipp. Jour. Sci.* xi. Bot. 128 (1916).

This variety differs from the type chiefly in the smaller leaves of firmer texture, slightly reticulate beneath, coarsely crenate-serrate, without or with three short lobes, and like the branchlets usually glabrous or sometimes with a short minute pubescence on the veins beneath and on the young branchlets and petioles. It is known from the Chinese provinces Kwangtung and Fokien, from Formosa and the Philippine Islands. There are also specimens before me from the Liukiu Islands which are probably best referred to this variety, though part of the leaves resemble var. *Maximowiczii* and part var. *kulingensis*.

Columella Lour.

It has been recently shown by Merrill (in *Philipp. Jour. Sci.* xi. Bot. 131 [1916]) that *Columella Loureiro* is the oldest name for *Cayratia* Jussieu. Though he voices the hope that a future Botanical Congress will include *Cayratia* under the nomina conservanda, to avoid the renaming of *Columellia* Ruiz & Pavon and of the family of *Columelliaceae*, he adopts the name, makes a number of new combinations and describes some new species. As we do not know when another Botanical Congress will take place and as it is doubtful what action it will take in regard to cases like this, it seems best to be governed by the present rules and accept *Columella Loureiro*. We may even retain *Columellia* Ruiz & Pavon, as it differs in spelling, though only slightly. Whether we accept *Cayratia* or *Columella*, new combinations cannot be avoided, as Gagnepain has described a number of new species under *Cayratia*, while Merrill and Elmer have done the same under *Columella*. At present I am concerned only with the following species which is well represented in our herbarium and which has been introduced into cultivation by E. H. Wilson in 1907.

Columella oligocarpa, comb. nov. — *Vitis oligocarpa* Léveillé & Vaniot in *Bull. Soc. Agric. Sci. Sarthe*, LX. 41 (1905); in Fedde, *Rep. Spec. Nov.* II. 159 (1906). — *Cayratia oligocarpa* Gagnepain in Lecomte, *Not. Syst.* I. 348, 359 (1910); in Sargent, *Pl. Wilson.* i. 99 (1911). — *Cissus oligocarpa* Bailey, *Stand. Cycl. Hort.* II. 775 (1914).

CENTRAL CHINA.

MISCELLANEOUS GENERA

× *Juglans Bixbyi*, nom. nov. = *J. cinerea* × *Sieboldiana* Bixby in Am. Nut Jour. x. 76, fig. 5, nos. 2 and 3, fig. 7 (1919).

In the autumn of 1918 Mr. Willard G. Bixby sent to the Arnold Arboretum some walnuts with corresponding specimens of leaves gathered near Bristol, Indiana, in the Walnut-grove of Mr. Alva Y. Cathcart. These specimens came from trees raised about 16 or 17 years ago from nuts of the Japanese Walnut trees on Mr. Cathcart's place, and grown from nuts imported from Japan. The nuts, however, borne by these seedlings proved to be different from those of the parent tree and were mostly rough-shelled, resembling more or less those of the Butternut. There can be hardly any doubt, as pointed out and proved by Mr. Bixby in his detailed and well illustrated article cited above, that these trees are hybrids between the Japanese Walnut and the native Butternut which grows wild near Bristol.

Considering the great variability of these seedlings, it does not seem feasible to draw up a general description of the hybrid. I refer to the excellent illustrations given by Mr. Bixby and may state that from *J. Sieboldiana* they differ in the more or less rough-shelled nut, the more viscid-pubescent husk, while from *J. cinerea* they differ in the less deeply and sharply ridged and sculptured nut. The leaves are sometimes more like those of *J. Sieboldiana* as in No. 5 (in fig. 7 cited above), or more like *J. cinerea* as in No. 2, which is intermediate in fruit and may be considered the type of this hybrid. The leaves of the two species are so similar and show considerable variation within each species, that it is hardly possible to distinguish the hybrid forms from their parent species by the leaves alone.

I take pleasure in associating with this interesting hybrid which may be the starting point of a race of improved varieties, the name of Mr. Willard G. Bixby, who has done and is doing so much successful work for the development of the American nut-growing industry.

× *Juglans Bixbyi* var. *lancastriensis*, var. nov. = *J. cinerea* × *Sieboldiana* var. *cordiformis*. — *J. cordiformis* × *cinerea* Bixby in Am. Nut Jour. x. 82, fig. 6, 11 (1918).

In general appearance the nuts of this hybrid are similar to the rougher forms of the preceding hybrid, but they show the influence of *J. Sieboldiana* var. *cordiformis* Makino (*J. cordiformis* Maxim.) in the somewhat compressed nut with a strongly elongated slender point. Mr. Bixby has kindly sent us nuts of this form from a tree in the orchard of Mr. J. F. Jones, in Lancaster, Pennsylvania, which was raised from the seed of the "Hollinger Heartnut," a typical *J. Sieboldiana* var. *cordiformis*. The ridges of the nut of this hybrid are almost as prominent and sharp as those of the Butternut, but the shape of the nut is different.

On page 82 or 83 of Mr. Bixby's article, cited above, there occurs a misleading statement probably due to some omission in copying the

original manuscript, which calls for a correction. "Juglans Hindsii \times nigra, Royal Walnut" does not occur in Massachusetts; it is like the Paradox Walnut a cross of Burbank's and originated in California. The Massachusetts trees mentioned belong to *J. cinerea* \times *regia* = *J. quadrangulata* Rehd. (*J. intermedia quadrangulata* Carr.). To the hybrids enumerated by Mr. Bixby may be added *J. nigra* \times *regia* = *J. intermedia* Carr. which was first observed in Europe and to which probably the "James River Hybrid" belongs.

Rubus Henryi Hemsl. & Kuntze var. **bambusarum**, var. n. — *R. bambusarum* Focke in Hooker, Icon. Pl. xx. in nota ad tab. 1952 (1891); in Bibl. Bot. xxxii. 44 (1910).

CHINA. Hupeh.

This variety differs from the type in the 3-foliate, not 3-5-parted, leaves and in the densely villose calyx neither bristly nor glandular. Though I have no doubt that *R. Henryi* and *R. bambusarum* are conspecific, I prefer to keep the latter form distinct at least as a variety, as there are hardly any transitions between the two. In *Plantae Wilsonianae* (I. 49 [1911]) where Focke refers *R. bambusarum* as a synonym to *R. Henryi*, he states that ternate and simply trifid leaves occur on the same branch, but as the specimens (Wilson No. 48) show the trifid or simple lanceolate leaves occur only just below the inflorescence; and it is the case in almost all compound-leaved *Rubus*, that the leaves below the inflorescence are apt to be simple. Otherwise the specimens before me show either the simple trifid leaves of *R. Henryi* as in Wilson's No. 76 and in his No. 996 of the Veitch Expedition and or the ternate leaves of the var. *bambusarum* as in Wilson's No. 48 and in his No. 786 of the Veitch Expedition. The same is true of the cultivated plants of both forms.

Xylosma congestum Merr. var. **pubescens**, comb. nov. — *X. racemosum* var. *pubescens* Rehder & Wilson in Sargent, Pl. Wilson. I. 283 (1912).

As shown by Merrill (in *Philipp. Jour. Sci.* xv. 247 [1919]) the plant now generally known as *X. racemosum* Miquel was first described by Loureiro as *Croton congestum* (Fl. Cochinch. 582 [1790]) which made necessary the new specific combination *X. congestum* Merrill, and this in turn involves the new varietal combination proposed above.

Cornus florida L. f. **xanthocarpa**, forma nov.

A typo recedit fructu luteo.

Hort. Miss L. C. Wilcox, Saluda, North Carolina, October 21, 1919, Miss L. C. Wilcox (Herb. Arnold Arboretum).

A yellow-fruited *Cornus florida* has also been found near Oyster Bay, Long Island, by Hicks & Co. of Westbury.

\times **Symphoricarpus Chenaultii**, hybr. nov. (= *S. microphyllus* \times *orbiculatus*).

Frutex ramosus gracilis, metralis vel ultra, ramis erectis saepissime subregulariter decussatim ramulosis ramulis patentibus apicem versus floriferis; ramuli juniores puberuli. Folia elliptica v. late elliptica, utrinque acuta v. basi subrotundata, apice mucronata, 1-2 cm. longa et 0.6-1.7 cm. lata, supra coerulesco-viridia, glabra, subtus glauca, villosula, nervis utrinsecus 3-5 elevatis; petioli puberuli, 1-2 mm. longi. Flores sessiles, in fasciculis vel spicis axillaribus et terminalibus ad 1 cm. longis, pedunculis 2-6 mm. longis puberulis suffultis; calycis lobi triangulari-ovati, ciliolati; corolla breviter tubulosa, 6 mm. longa, roseo-alba, glabra, lobis erectis late ovalibus 2 mm. longis, tubo ventre leviter inflato 4 mm. longo intus supra medium piloso; stamina lobos paullulo superantia, filamentis glabris 1.5 mm. longis, antheris lineari-oblongis 1 mm. longis; stylus mediam corollam aequans, longe pilosus. Baccae subglobosae, calyce coronatae, 4-7 mm. longae, rubrae, minute pallide punctulatae, facie inferiore pleraeque albescentes, rubro-punctulatae; semina elliptica, 3.5 mm. longa, albida.

Cultivated at the Arnold Arboretum under No. 7255 (plants received from Léon Chenault & Cie. at Orléans, France, in 1912, as *S. parviflorus conglomeratus*); specimens collected: August 16 and November 12 and 20, 1915; August 1, 1916.

This plant is probably a hybrid between *S. orbiculatus* Moench and *S. microphyllus* H.B.K. In its habit and in the smallness of the leaves it is very similar to the latter species, but differs in the more pubescent underside of the leaves, in the always clustered or spicate flowers, in the shorter and broader corolla-tube only twice as long as the lobes, in the pilose and shorter style and in the red or partly red color of the fruit. From *S. orbiculatus* it is easily distinguished by the generally smaller leaves, the tubular not broadly campanulate corolla with the nectary glands extending all round below the middle, and by the lighter colored partly whitish fruit. The color of the fruit is rather peculiar; it is usually bright purplish red on the upper exposed side with numerous minute light dots and toward the lower side the color passes gradually into pinkish white sprinkled with purplish dots. In this peculiarity of coloring the fruit resembles that of *Lonicera Vilmorinii* Rehd., a hybrid between the red-fruited *L. deflexicalyx* Batal. and the white-fruited *L. quinquelocularis* Hardw.

Symphoricarpus Chenaultii is a handsome shrub of regular habit with bright green leaves smaller than in any other species of the genus hardy in this Arboretum. Though neither in bloom nor in fruit conspicuous, it will be valued as an ornamental shrub on account of its dense rather low habit and the neat bright green foliage.

(To be continued)